Paper No. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte PAUL J. LAWRENCE, AULENA CHURHURI
and TERRENCE J. ANDREASEN

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Appeal No. 1999-0123
Application No. 08/406,239

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ON BRIEF

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Before WILLIAM F. SMITH, ROBINSON and ADAMS, Administrative Patent Judges.

ADAMS, Administrative Patent Judge.

## DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-46, 49-55, 59-63, 66-72 and 76-95, which are all the claims pending in the application.

Claim 1 is illustrative of the subject matter on appeal and is reproduced below:

1. A method for assaying for the presence of an enzymatically active hydrolase in a sample, said method comprising:

(a) placing said sample in a test device such that said sample contacts a first solid support in said test device, said first solid support having a reporter enzyme in dry form and covalently attached thereto in such a manner whereby said reporter enzyme is released upon action of said hydrolase, and such that said sample simultaneously contacts a second solid support having immobilized thereon in dry form an indicator, said indicator being one which is susceptible to a detectable change upon action of said reporter enzyme but not susceptible to said change in the absence of said sample; and

(b) observing whether said indicator undergoes a detectable change, said detectable change being an indication of the presence of said enzymatically active hydrolase in said sample.

The references relied upon by the examiner are:

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| Goldman et al. (Goldman) | 5,120,718 | Jun. 9, 1992 |
| Mielke et al. (Mielke) | 5,156,954 | Oct. 20, 1992 |
| Herrmann et al. (Herrmann) | 5,202,233 | Apr. 13, 1993 |

Zherdev, "Method of proteolytic activity determination using bovine serum albumin conjugate with peroxidase," Zh. Microbiological Epimeriology Immunobiology, pp. 51-55 (1988)[1]

[1] The examiner relied on an official translation of this foreign document.

GROUNDS OF REJECTION

Claims 1-3, 23-25 and 76-95 stand rejected under 35 U.S.C. § 112, first paragraph, as being based on an insufficient disclosure to support or enable the scope of the claims drawn generically to hydrolases or inhibitors.[2]

Claims 1-46, 49-55, 59-63, 66-72 and 76-95 stand rejected under 35 U.S.C. § 112, first paragraph, as being based on an insufficient disclosure to support or enable the scope of the claims with respect to, inter alia, proteases, peptidases, lipases, etc.

Claims 1-21 and 23-43 stand rejected under 35 U.S.C. § 103 as being unpatentable over Zherdev and Herrmann.

Claim 22 stands rejected under 35 U.S.C. § 103 as being unpatentable over Zherdev and Herrmann further in view of Mielke.

Claims 76-95 stand rejected under 35 U.S.C. § 103 as being unpatentable over Zherdev, Herrmann and Mielke further in view of Goldman.

We reverse.

[2] We note the rejection of claims 1-3, 23-25 and 76-95 is directly connected and relates to the objection to the specification. In re Hengehold, 440 F.2d 1395, 1403-1404, 169 USPQ 473, 479-480 (CCPA 1971).

DISCUSSION

In reaching our decision in this appeal, we have considered appellants' specification and claims, in addition to the respective positions articulated by the appellants and the examiner. We make reference to the examiner's Answer[3], and the examiner's Supplemental Answer[4] for the examiner's reasoning in support of the rejections. We further reference appellants' Brief[5], and appellants' Reply Brief[6] for the appellants' arguments in favor of patentability.

THE REJECTIONS UNDER 35 U.S.C. § 112, FIRST PARAGRAPH:

Appellants argue the rejections under 35 U.S.C. § 112, first paragraph together, therefore, we will treat them together in this decision.

It is well settled that the examiner bears the initial burden of providing reasons why a supporting disclosure does not enable a claim. In re Marzocchi, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971). See also, In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404, (Fed. Cir. 1988):

> Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized by the board in In re Forman, [230 USPQ 546, 547 (Bd. Pat. App. Int. 1986)]. They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. (footnote omitted).

[3] Paper No. 15, mailed August 28, 1997.
[4] Paper No. 17, mailed November 12, 1997.
[5] Paper No. 14, received July 21, 1997.
[6] Paper No. 16, received October 27, 1997.

In this case the examiner failed to analyze the claimed invention with reference to the factors set forth in Wands. In addition, the examiner failed to provide any support upon which to base his opinion that undue experimentation would be required to practice the invention. Instead, the examiner merely provides conclusory statements, such as "a number of types [sic] of hydrolytic enzymes are contemplated but the specification is not enabling for all of them. Many would not likely work in the claimed invention…" and "inhibitors are contemplated but the specification does not teach how to perform the assays for all the inhibitors" (Answer, page 11).

As set forth in In re Marzocchi, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971) it is "incumbent upon the Patent Office, whenever a rejection on this basis is made, to explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement." On this record the examiner has merely asserted that due to the large number of embodiments encompassed by the claimed invention, many would not likely work in the claimed invention. In addition, with regard to the examiner's concern that the claimed invention includes inoperative embodiments, we direct the examiner's attention to Atlas Powder Co. v. E.I. DuPont De Nemours & Co., 750 F.2d 1569, 1576-77, 224 USPQ 409, 414 (Fed. Cir. 1984):

> Even if some of the claimed combinations were inoperative, the claims are not necessarily invalid. "It is not a function of the claims to specifically exclude ... possible inoperative substances ...." In re Dinh-

> Nguyen, 492 F.2d 856, 859-59, 181 USPQ 46, 48 (CCPA 1974)(emphasis omitted). Accord, In re Geerdes, 491 F.2d 1260 , 1265, 180 USPQ 789, 793 (CCPA 1974**);** In re Anderson, 471 F.2d 1237, 1242, 176 USPQ 331, 334-35 (CCPA 1971). Of course, if the number of inoperative combinations becomes significant, and in effect forces one of ordinary skill in the art to experiment unduly in order to practice the claimed invention, the claims might indeed be invalid. See, e.g., In re Cook, 439 F.2d 730, 735, 169 USPQ 298, 302 (CCPA 1971).

Furthermore, appellants argue (Brief, page 16) that "[t]he [e]xaminer has provided no examples of hydrolases or inhibitors that 'would not likely work in the claimed invention … [e]ven if the claims did encompass inoperative species … this is not legally sufficient grounds for rejecting them." We agree.

On these facts, the examiner failed to meet his burden of establishing that the claimed invention is not enabled throughout its entire scope. Accordingly, we reverse the examiner's rejections under 35 U.S.C. § 112, first paragraph.

THE REJECTIONS UNDER 35 U.S.C. § 103:

Appellants argue the rejections under 35 U.S.C. § 103 together, therefore, we will treat them together in this decision.

The initial burden of presenting a prima facie case of obviousness rests on the examiner. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). Furthermore, it is well-established that before a conclusion of obviousness may be made based on a combination of references, there must have been a reason, suggestion or motivation to lead an inventor to combine those references. Pro-Mold and Tool Co. v. Great Lakes Plastics Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629 (Fed. Cir. 1996).

Each of the examiner's rejections under 35 U.S.C. § 103 requires the combination of Zherdev and Herrmann. The examiner relies on Zherdev to teach (Answer, page 4):

> [I]n the translation provided, on page 2 a method of analysis by introducing tagged enzymes, such as horseradish peroxidase, of protease substrates for developing determination of proteolytic activity. Bovine serum albumin is the conjugate. On page 3 paragraph 2, alkaline protease is shown. On page 4 paragraph 2, absorbance is measured. Polystyrene is used as a solid support on page 4 paragraph 3. On page 12 paragraph 2, trypsin is shown.

The examiner finds (Answer, page 5) that "[c]laim 1 differs from Zherdev in that it specifies an indicator is present which is susceptible to a detectable change upon action of the reporter enzyme." To make up for this deficiency the examiner relies on Herrmann (Answer, page 5) for the disclosure that "detection of substances with hydrolase activity with uncolored substrates are converted into colored products … the reaction is carried out on a fleece or film [and, inter alia,] the reaction is performed on a carrier which may be cellulose, synthetic resins or mixtures."

With regard to the limitation in claim 1(a) that the enzyme is immobilized, the examiner argues (Answer, page 6) that "immobilization of enzymes is a well known technique used in many biological and chemical arts and would produce an expected result … [i]mmobilized indicators in test strips are nearly universal in the test strip art and no unexpected results are seen."

However, as set forth in Ecolochem Inc. v. Southern California Edison, 227 F.3d 1361, 1375, 56 USPQ2d 1065, 1075 (CAFC 2000):

> "[T]he suggestion to combine may be found in explicit or implicit teachings within the references themselves, from the ordinary knowledge of those skilled in the art, or from the nature of the problem to be solved." … However, there still must be evidence that "a skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed." … "[A] rejection cannot be predicated on the mere identification … of individual components of claimed limitations. Rather particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed."…. [Citations omitted].

On this record we agree with appellants (Brief, page 12) that the disclosure of Herrmann "does not apply to the assay disclosed by Zherdev et al., nor is it logically or reasonably combined with the assay of Zherdev et al. for various reasons." Among these reasons, appellants argue (Brief, page 13) that if all the assay components were incorporated into the solid support of Zherdev it "would defeat the assay, since the final step of the Zherdev et al. assay can only be performed after unbound components … have been washed away." In addition, appellants argue (Brief, page 13) that "a fleece or film [taught by Herrmann] is hardly interchangeable with a well plate … there is no suggestion as to how the two disclosures can be combined in a practical sense by the routine engineer … and there is no motivation to lift the indicator disclosures out of Herrmann et al. and incorporate them into Zherdev et al.

We agree with appellants. While a person of ordinary skill in the art may possess the requisite knowledge and ability to modify the protocol taught by Zherdev, the modification is not obvious unless the prior art suggested the

desirability of the modification. In re Gordon, 733 F.2d 900, 902, 211 USPQ 1125, 1127 (Fed. Cir. 1984). Here we see no such reason to modify the references as applied by the examiner to obtain the claimed invention, which requires, inter alia, both an immobilized reporter enzyme and an immobilized indicator.

Accordingly, we reverse the examiner's rejection of claims 1-21 and 23-43 under 35 U.S.C. § 103 as being unpatentable over Zherdev and Herrmann.

The examiner relies on Mielke (Answer, page 7) to disclose "an assay which generates peroxide with an oxidase, reacted with peroxidase to convert a substrate reagent to a colored reaction product. A substance which competes with the substrate reagent gives a wider range of analyte concentrations results. In claim 7 [sic] amino antipyrine is shown as an indicator."

Mielke however, does not make up for the deficiencies of the combination of Zherdev and Herrmann. Accordingly we reverse the examiner's rejection of claim 22 under 35 U.S.C. § 103 as being unpatentable over Zherdev and Herrmann further in view of Mielke.

The examiner relies on Goldman (Answer, page 10) to disclose "in column 20 an in vitro inhibitor assay method for inhibitors of C. albicans acid proteinase with a fluorogenic substrate."

Goldman however, does not make up for the deficiencies of the combination of Zherdev and Herrmann. Accordingly we reverse the examiner's rejection of s 76-95 stand rejected under 35 U.S.C. § 103 as being unpatentable over Zherdev, Herrmann and Mielke further in view of Goldman.

REVERSED

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| WILLIAM F. SMITH | ) |
| Administrative Patent Judge | ) |
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| | ) BOARD OF PATENT |
| DOUGLAS W. ROBINSON ) | |
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| DONALD E. ADAMS | ) |
| Administrative Patent Judge | ) |

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